

## PATENT ABSTRACTS OF JAPAN

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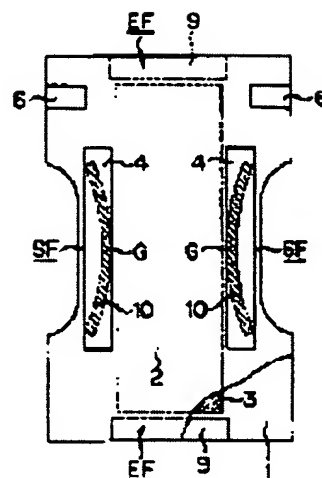
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## (54) DISPOSABLE PAPER DIAPER

## (57)Abstract:

**PURPOSE:** To form an elastically stretching line as curve for forming a gasket cuffs around leg parts without a process of stretching an elastically stretching member in a curve.

**CONSTITUTION:** In this disposable paper diaper, a liquid permeating surface sheet 2 and a non-liquid permeating rear sheet 1 are arranged and an absorbing body 3 is interposed between both the sheets while it has side flap parts SF and SF without any absorbing body extended externally from both side ends of the absorbing body and an elastically stretching line is curved as viewed from above to form gasket cuffs G and around legs of the side flap parts SF and SF. In this disposable paper diaper thus arranged, band-shaped stretching sheet-shaped members 4 and 4 with a certain size of width are used. Then, a fastening line is fixed as curved line in a state in which the stretching sheet-shaped members 4 and 4 are drawn evenly along the length thereof.



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## CLAIMS

[Claim(s)]

[Claim 1] While an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets in order to have the side flap section in which the absorber prolonged in the method of outside [ edge / of this absorber / both-sides ] does not exist and to form a gasket kaus in the circumference of the foot of this side flap section In the disposable disposable diaper with which elastic flexible Rhine which carried out the \*\*\*\* curve superficially was formed The disposable disposable diaper characterized by forming said elastic flexible Rhine which carried out the \*\*\*\* curve superficially by being established considering a fixing line as a curve line using the band-like elasticity sheet-like member which has a certain amount of width of face where this elasticity sheet-like member is extended to homogeneity at a longitudinal direction.

[Claim 2] While an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets in order to have the side flap section in which the absorber prolonged in the method of outside [ edge / of this absorber / both-sides ] does not exist and to form a gasket kaus in the circumference of the foot of this side flap section In the rectangular condition before being the disposable disposable diaper with which elastic flexible Rhine of the letter of a \*\*\*\* curve was formed superficially, cutting off a leg garbage and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the band-like elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction in the condition of having extended to homogeneity The disposable disposable diaper which cuts said leg stub and is characterized by said thing [ having formed elastic flexible Rhine of the letter of a \*\*\*\* curve superficially ] after fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in this elasticity sheet-like member.

[Claim 3] While an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets It is the disposable disposable diaper of the sheet mold which has a firm attachment tape on both sides at the side flap section [ in which the absorber with which the whole flat-surface configuration was made into the shape of an abbreviation sandglass, and was prolonged in the method of outside / edge / of this absorber / both-sides / does not exist ], and guardianship time. In the rectangular condition before cutting off a leg garbage and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the band-like elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction in the condition of having extended to homogeneity After fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in this elasticity sheet-like member, The disposable disposable diaper of the sheet mold characterized by forming barrier cuffs in inside the non-fixing part of an elasticity sheet-like member while cutting said leg stub and forming gasket cuffs in the side flap section in the curve Rhine-like fixing part of said elasticity sheet-like member.

[Claim 4] Between a liquid permeability surface sheet and a non-liquid permeability rear-face sheet, at least, leave the side flap part constituted with said each sheet, and the endocyst of the absorber is carried out to the circumference part of a foot. When it develops bordering on a longitudinal direction core in a product condition, the shape of a sandglass Nothing. In the rectangular condition before the front best time to see which it was folded up by the cross direction and folded up, and guardianship time being the disposable disposable diapers of the trousers mold joined in those edges on both sides, cutting off a leg garbage and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the band-like elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction in the condition of having extended to homogeneity After fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in this elasticity sheet-like member, The disposable disposable diaper of the sheet mold characterized by forming barrier cuffs in inside the non-fixing part of an elasticity sheet-like member while cutting said leg stub and forming gasket cuffs in the side flap section in the curve Rhine-like fixing part of said elasticity sheet-like member.

[Claim 5] The disposable disposable diaper of said elasticity sheet-like member according to claim 1 to 4 with which a side face or both sides were given a water-repellent finish on the other hand.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the disposable disposable diaper with which the curve-like gasket kaus was formed along with the circumference of a foot in the state of flat-surface expansion.

[0002]

[Description of the Prior Art] In recent years, various amelioration is added and, as for the disposable disposable diaper with which the commercial scene is provided, leakage prevention is achieved. for example, in the case of the flat mold disposable diaper shown in JP,64-30304,A (example 1 of precedence) By incurvating the elastic flexible members 20 and 20 arranged at the both sides of a disposable diaper to the inner direction, and being established, as shown in drawing 10 As shown in drawing 11, said elastic member flexible members 20 and 20 are arranged in the location which met the circumference of a foot in the state of wearing, and the disposable disposable diaper which is going to prevent horizontal leakage effectively by the gasket kaus formed of these elastic flexible members 20 and 20 is indicated.

[0003] Moreover, generally the elastic flexible members 21 and 21 for forming gasket cuffs along the perimeter of leg opening are arranged, without restricting to this example of an official report, as shown in drawing 12 in the case of the trousers mold disposable diaper shown in JP,5-184622,A (example 2 of precedence). These leg elastic flexible members 21 and 21 are arranged in the shape of a curve along with the rim line of a leg concave notch, as shown also in the flat-surface development view of drawing 13.

[0004] Moreover, in JP,62-250201,A (example 3 of precedence), and said example 2 of precedence, while arranging an elastic flexible member in the side flap section as mentioned above, giving a shrinkage force and forming gasket cuffs, by forming in the inside the barrier cuffs 22 and 22 which stand up to the circumference of the foot of a diaper, a duplex barrier is formed and horizontal leakage prevention is aimed at.

[0005]

[Problem(s) to be Solved by the Invention] However, in the case of the example 1 of precedence, and the example 2 of precedence, in order to lengthen an elastic flexible member in the shape of a curve, the complicated process was required, and line speed was reduced inevitably, and if it was \*\*\*\*, there was difficulty in respect of manufacture effectiveness -- there is nothing. Moreover, when fixing an elastic flexible member in the shape of a curve, it is technically difficult to consider as the degree of shrinkage of homogeneity over an overall length, the clearance was formed in the part with a small degree of shrinkage for the degree of shrinkage of an elastic flexible member in the state of a partial difference and wearing, and there was a trouble of being unable to prevent horizontal leakage.

[0006] Moreover, also although it is very effective from a viewpoint of leakage prevention of an effluent in the case of the disposable disposable diaper indicated by the example 2 of precedence, and the example 3 of precedence The process which will attach a barrier sheet if the manufacture process is seen, the process which forms the barrier cuffs which fix an elastic flexible member to a barrier sheet, and stand up to a use side side, There was a problem of having to step on like complicated erectors, such as a process which fixes an elastic flexible member in the side flap section, and forms gasket cuffs in it.

[0007] Then, the 1st main technical problem of this invention is to be able to form curved elastic flexible Rhine, without stepping on the process which lengthens an elastic flexible member in the shape of a curve, have, and make it the high disposable disposable diaper of the improvement in productive efficiency, and the horizontal leakage prevention effectiveness. Moreover, the 2nd technical problem lessens a number and the erector in the case of forming barrier cuffs in coincidence further offers the disposable disposable diaper which can raise productive efficiency.

[0008]

[Means for Solving the Problem] While an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets, said technical problem In order to have the side flap section in which the absorber prolonged in the method of outside [ edge / of this absorber / both-sides ] does not exist and to form a gasket kaus in the circumference of the foot of this side flap section In the disposable disposable diaper with which elastic flexible Rhine which carried out the \*\*\*\* curve superficially was formed It is solvable by having formed said elastic flexible Rhine which carried out the \*\*\*\* curve superficially by being established considering a fixing line as a curve line using the band-like elasticity sheet-like member which has a certain amount of width of face, where this elasticity sheet-like member is extended to homogeneity at a longitudinal direction.

[0009] Moreover, while an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets In order to have the side flap section in which the absorber prolonged in the method of outside [ edge / of this absorber / both-sides ] does not exist and to form a gasket kaus in the circumference of the foot of this side flap section In the rectangular condition before being the disposable disposable diaper with which elastic flexible Rhine of the letter of a \*\*\*\* curve was formed superficially, cutting off a leg garbage and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the band-like elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction in the condition of having extended to homogeneity After fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in this elasticity sheet-like member, said leg stub can be cut and elastic flexible Rhine of the letter of a \*\*\*\* curve can also be formed in said flat-surface target.

[0010] subsequently, as a disposable disposable diaper which can attain the 2nd technical problem While an absorber intervenes between a liquid permeability surface sheet, a non-liquid permeability rear-face sheet, and both [ these ] sheets The disposable disposable diaper of

the sheet mold which has a firm attachment tape on both sides at the side flap section [ in which the absorber with which the whole flat-surface configuration was made into the shape of an abbreviation sandglass, and was prolonged in the method of outside / edge / of this absorber / both-sides / does not exist ], and guardianship time, Or between a liquid permeability surface sheet and a non-liquid permeability rear-face sheet, at least, leave the side flap part constituted with said each sheet, and the endocyst of the absorber is carried out to the circumference part of a foot. When it develops bordering on a longitudinal direction core in a product condition, the shape of a sandglass Nothing, In the rectangular condition before the front best time to see which it was folded up by the cross direction and folded up, and guardianship time being the disposable disposable diapers of the trousers mold joined in those edges on both sides, cutting off a leg garbage and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the band-like elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction in the condition of having extended to homogeneity After fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in this elasticity sheet-like member, While cutting said leg stub and forming gasket cuffs in the side flap section in the curvilinear Rhine-like fixing part of said elasticity sheet-like member, it is solvable by having formed barrier cuffs in the inside non-fixing part of an elasticity sheet-like member.

[0011] In this case, the horizontal leakage for liquid [ loose passage ] and order leakage can be certainly prevented by giving suitably each side or both sides of said elasticity sheet-like member a water-repellent finish.

[0012]

[Function] Where the band-like elasticity sheet-like member which has a certain amount of width of face is extended to homogeneity in this invention at a longitudinal direction, a fixing line by being established as a curve line In the rectangular condition before forming elastic flexible Rhine which carried out the \*\*\*\* curve superficially, or cutting off a leg garbage and considering as the shape of an abbreviation sandglass After fixing in the field containing the fixing line formed along with the inside of the cut line of said leg stub at least in said band-like elasticity sheet-like member, it considers as curved elastic flexible Rhine by cutting said leg stub. Therefore, without stepping on the process established while lengthening an elastic member in the shape of a curve like before, the gasket kaus formed in the shape of a curve in the state of flat-surface expansion can be formed, and decline in the manufacture effectiveness by the fall of line speed like before is not caused. Moreover, in order that fixing may perform an elasticity sheet-like member to a longitudinal direction in the condition of having lengthened to homogeneity, a degree of shrinkage becomes uniform over an overall length, and the horizontal leakage prevention effectiveness will become high in the state of wearing.

[0013] moreover, in forming barrier cuffs in coincidence In the rectangular condition before cutting off the leg garbage of a diaper and considering as the shape of an abbreviation sandglass While arranging in the both-sides section of this disposable disposable diaper front face the elasticity sheet-like member which has a certain amount of width of face along with an abbreviation diaper longitudinal direction at that longitudinal direction according to this invention in the condition of having extended to homogeneity After fixing in a field including fixing Rhine which meets the cut line of said leg stub in this elasticity sheet-like member, said leg stub is cut. Therefore, while a curvilinear gasket kaus can be formed in said curve fixing part, barrier cuffs can be formed by the non-fixing part of a veranda. Therefore, without passing like a complicated erector like before, at one process, barrier cuffs and gasket cuffs can be formed now, it can have them easily, and productive efficiency can be raised by leaps and bounds.

[0014]

[Example] Hereafter, this invention is explained in full detail based on an example. It consists of curdy pulp etc. between the liquid permeability surface sheets 2 which consist of a non-liquid permeability rear-face sheet 1 with which the disposable diaper of the sheet mold concerning this invention shown in drawing 1 consists of polyethylene etc., a nonwoven fabric, etc., for example, is placed between them by the absorber 3 of a rectangle or a sandglass configuration which has rigidity to some extent. An absorber 3 can be wrapped by the absorbent paper (not shown) for the configuration maintenance. The non-liquid permeability rear-face sheet 1 \*\*\*\*s in this, and the liquid permeability surface sheet 2 extends in the method of outside [ perimeter / of an absorber 3 ], and it is joined with hot melt adhesive etc. while it extended in the method of outside [ perimeter / of an absorber 3 ] and has constituted the abbreviation sandglass configuration. While the side flaps SF and SF are formed in the both-sides part of the diaper middle in said non-liquid permeability rear-face sheet 1 and the liquid permeability surface sheet 2, the end flaps EF and EF are formed in the diaper order edge, respectively. In addition, 6 is a firm attachment tape and 9 is lumbar part elastic flexible material.

[0015] As the 1st example of the disposable diaper concerning this invention, as shown in drawing 1 After applying binders, such as hot melt, in the shape of a curve using the band-like elasticity sheet-like members 4 and 4 which have a certain amount of width of face (field shown with a slash), said elasticity sheet-like members 4 and 4 by being extended and fixed to homogeneity at the longitudinal direction The gasket cuffs G and G are formed by these fixing lines 10 and 10 that carried out the \*\*\*\* curve superficially.

[0016] Moreover, as the 2nd example, as shown in drawing 2, it sets in the rectangular condition before cutting off the crop parts 8 and 8 of the leg and considering as the shape of an abbreviation sandglass (illustrated on the left-hand side of a center line). While arranging in the front-face side of the side flap part SF of the both sides of a disposable disposable diaper the band-like leg elasticity sheet-like members 4 and 4 which have a certain amount of width of face along with a diaper longitudinal direction at the longitudinal direction in the condition of having extended to homogeneity These leg elasticity sheet-like members 4 and 4 are pasted up in polymerization side 12 field with inside fixing Rhine 11 and the crop part 8 which meet the cutoff line L of said crop part 8, as a slash shows.

[0017] Then, said crop sections 8 and 8 are used as the disposable diaper of a sandglass configuration by cutting so that it may be illustrated in the right-hand side field of the center line of this drawing, and the rib-like gasket cuffs G and G are formed according to the flexible force of the curvilinear Rhine-like fixing part 11 of the leg elasticity sheet-like members 4 and 4. In addition, it is good by pasting up said leg elasticity sheet-like member 4 completely, without leaving a part for non-jointing of a corner. However, if spreading to the lap side 12 with said crop part 8 can be performed, it is more desirable not to carry out, although the spreading field of said hot melt becomes complicated for the improvement in the yield.

[0018] Subsequently, in the case of the disposable diaper shown in drawing 3 as the 3rd example In the rectangular condition before cutting off the crop parts 8 and 8 of the leg and considering as the shape of an abbreviation sandglass To the front-face side of the side flap part SF of the both sides of a disposable disposable diaper (straddling an absorber 3 and the side flap section SF correctly) While arranging in the longitudinal direction the band-like leg elasticity sheet-like members 4 and 4 which have a certain amount of width of face along with a diaper longitudinal direction in the condition of having extended to homogeneity It fixes in straight Rhine as shows preferably these leg elasticity sheet-like members 4 and 4 with a slash along with that inside along with the cutoff line L of said crop part 8. Then, barrier cuffs BS and BS which stand up to a use side side in common-law marriage side the non-fixing part of the leg elasticity sheet-like member 4

while forming the rib-like gasket cuffs G and G according to the flexible force of the curvilinear Rhine-like fixing part by the side of the rim of the leg elasticity sheet-like members 4 and 4 by cutting said crop sections 8 and 8 and considering as the disposable diaper of a sandglass configuration It forms. In this case, barrier cuffs BS which carry out opening of the longitudinal direction both ends of the leg elasticity sheet-like member 4 to the shape of a pocket by pasting up over full [ that ] It can carry out.

[0019] Moreover, as shown in drawing 8, only predetermined width of face turns up the common-law marriage side of the leg elasticity sheet-like members 4 and 4 outside, and they are the barrier cuffs BS of a duplex. By carrying out, the hit by the skin can consider as the high thing of the leakage prevention effectiveness in transparency softly. In addition, only predetermined width of face turns up the common-law marriage side of said leg elasticity sheet-like members 4 and 4 inside, and they are the barrier cuffs BS of a duplex. To carry out is possible. Furthermore, only predetermined width of face turns up a common-law marriage side to an outside or the inside similarly about the lumbar part elasticity sheet-like member 5, and they are the lumbar part barrier cuffs BE of a duplex. It can carry out.

[0020] Moreover, as a fixing field of said leg elasticity sheet-like member 4, as shown, for example in drawing 9, it can also consider as a KO character-like field. In this case, although the yield of hot melt adhesive material falls, elastic flexible Rhine of the letter of a curve can be formed by the cutoff line L of the crop part 8, without applying hot melt in the shape of a curve.

[0021] These disposable disposable diapers are the barrier cuffs BS in a wearing condition. It sticks to the circumference of a wearer's foot, it becomes a barrier (obstruction) and a change of loose passage solid content is prevented, and urination passes a liquid-permeable sheet 2 and is absorbed in an absorber 3. Furthermore, they are said barrier cuffs BS temporarily. Even if it gets over and loose passage solid content leaks, horizontal leakage is certainly prevented by the gasket cuffs G and G formed of the rim side fixing part of the leg elasticity sheet-like member 4.

[0022] On the other hand, a disposable disposable diaper order edge also on and the front face of the flap part EF (straddling an absorber 3 and the end flap section EF correctly) The lumbar part elasticity sheet-like members 5 and 5 which have a certain amount of width of face are arranged along the diaper cross direction. A part for the rim flank of the cross direction of this lumbar part elasticity sheet-like member 5 by fixing continuously or intermittently along with that longitudinal direction (The field shown in drawing 3 with a slash), Lumbar part barrier cuffs BE which stand up to a use side side by part for the common-law marriage side non-adhesion part of the lumbar part elasticity sheet-like member 5 Pelvic band W is formed of the flexible force of the rim side fixing part of the lumbar part elasticity sheet-like member which fixed at the same time it forms.

[0023] Therefore, they are said lumbar part barrier cuffs BE in a wearing condition. It sticks to a wearer's waist, it becomes a barrier (obstruction) and riding \*\*\*\* of loose passage solid content is prevented, and urination passes a liquid-permeable sheet 2 and is absorbed in an absorber 3. Furthermore, while the gap omission of a diaper is prevented by pelvic band W formed of the rim side fixing part of the lumbar part elasticity sheet-like member 5, even if it overcomes said lumbar part barrier cuffs BE and loose passage solid content leaks by sticking to the skin, it will be \*\*\*\*\* certainly about order leakage at pelvic band W.

[0024] In addition, it is not necessary to necessarily form said lumbar part elasticity sheet-like member 5 in both the venter of a disposable diaper, and a backside, and it is possible for the lumbar part of one side to consider as the elastic flexible member which intervened like before between the liquid permeability surface sheet 2 and the non-liquid permeability rear-face sheet 1.

[0025] by the way, as elasticity sheet-like members 4 and 5 used in this invention Natural rubber besides polyurethane rubber, natural rubber, and synthetic rubber, or the thin layer sheet of synthetic rubber, A polyurethane film, a polyurethane melt BURON nonwoven fabric, about [ 840d ] "spandex", From the point of having the thing of heat shrink nature by 3M company, such as "KER-2207", the point of the touch, and permeability to polyethylene Independent or these synthetic rubber, such as polyurethane, a styrene butadiene, a block polymer film, and a polyolefine system elastomer film, Styrene, ethylene, a butadiene, the blend object of styrene block polymer, The foam of a co-extrusion film with polyurethane and a polyolefine system elastomer, silicon, polyester, a vinyl chloride, and neoprene rubber and the product "malt PUREN RS" made from "ever light SGWS" Inoue em TIBI can be mentioned. [ by Bridgestone Corp. ] Moreover, they can also be used, making the elastic elasticity sheet-like member and inelastic elasticity sheet-like member which consist of each [ these ] material able to rival. Foaming polyurethane or polyethylene foam is suitably used from a cheap point among these. Moreover, as for especially elastic reinforcement, it is [ the degree of shrinkage in this case ] especially desirable 150 to 200% 50 - 600g/50mm width and that it is 200 - 500g/50mm width 110 to 250%.

[0026] Moreover, in the invention in this application, even if the elasticity sheet-like member 4 and 5 the very thing do not have elastic elasticity in quality of the material, you may constitute so that it may have such a function substantially. or [ for example, / folding up a nonwoven fabric to several /-fold /, as shown in drawing 6 and drawing 7 ] -- or it is possible to use what was rolled, arranged two or more yarn-like India rubber 7 and 7 -- in the interior, and was fixed to it.

[0027] Furthermore, it can prevent certainly that the amount of [ of a loose passage ] liquid permeates by giving a water-repellent finish with silicon etc. to both sides further to said elasticity sheet-like members 4 and 5 a use side or front-face side (inside side) (external surface side).

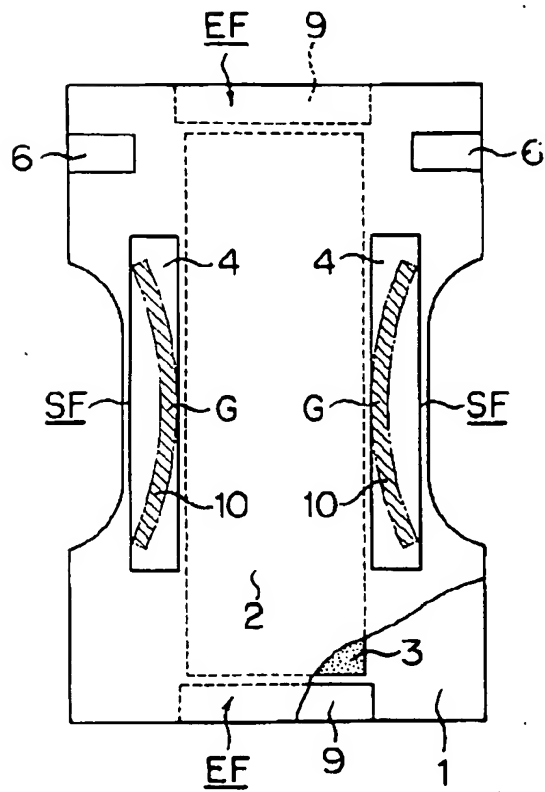
[0028] As mentioned above, although the disposable disposable diaper of the sheet mold which has the firm attachment tapes 6 and 6 was mentioned as the example and the invention in this application was explained, it is completely applicable similarly to the disposable disposable diaper of a trousers mold.

[0029]

[Effect of the Invention] Without stepping on the process which lengthens an elastic flexible member in the shape of a curve above according to the invention in this application as detailed explanation, elastic flexible Rhine of the curve which forms gasket cuffs in the circumference of the leg can be formed, and it can have, and can consider as the high disposable disposable diaper of productive efficiency and the horizontal leakage prevention effectiveness. moreover, when forming barrier cuffs in coincidence, a number is lessened, and an erector can boil manufacture effectiveness markedly and can raise it.

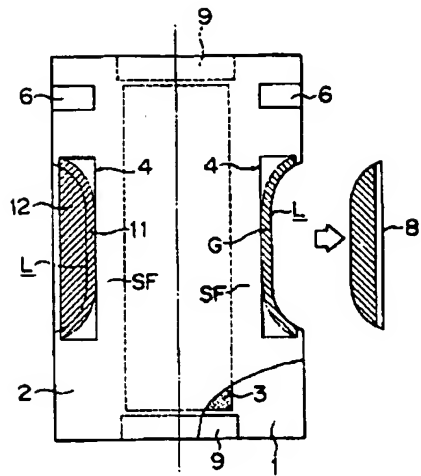
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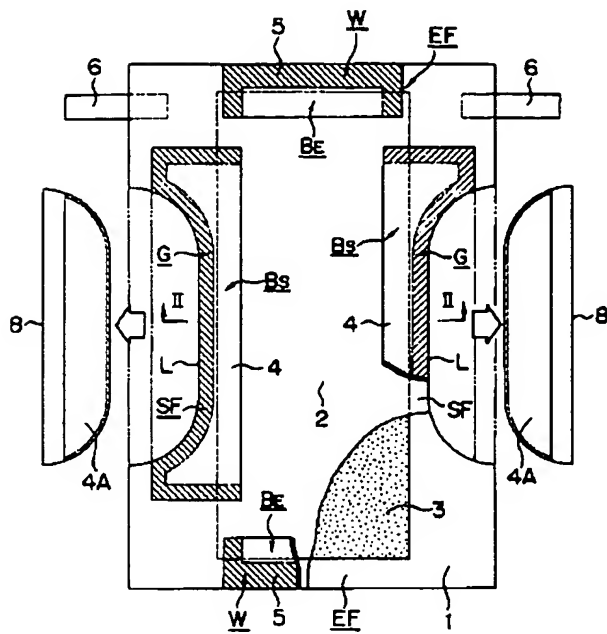
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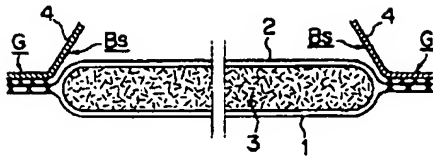
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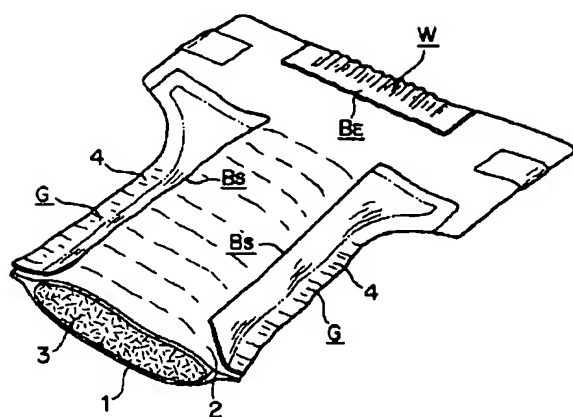
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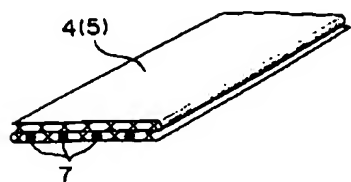
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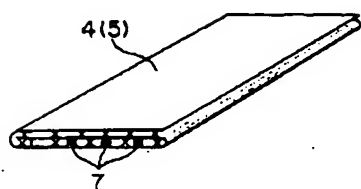
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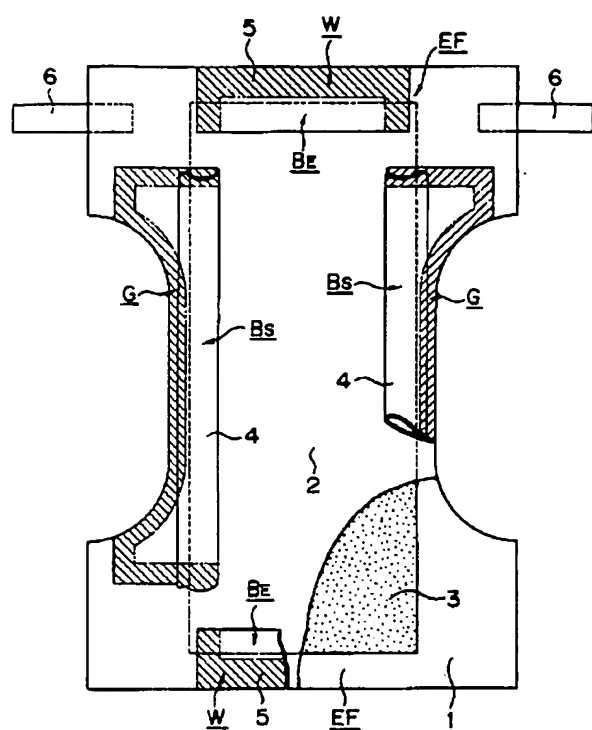
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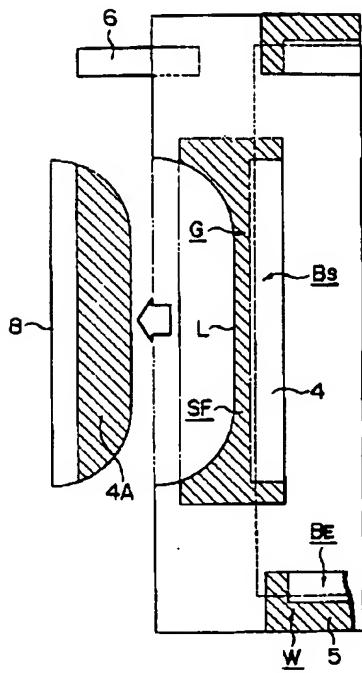
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Drawing selection drawing 8



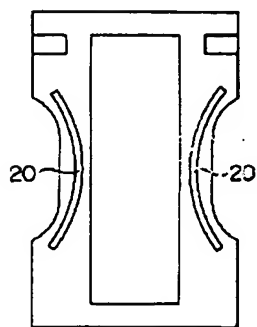
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Drawing selection drawing 9



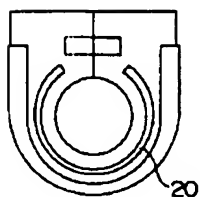
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Drawing selection drawing 10



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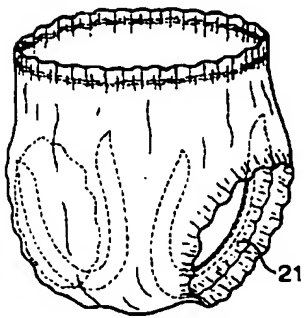
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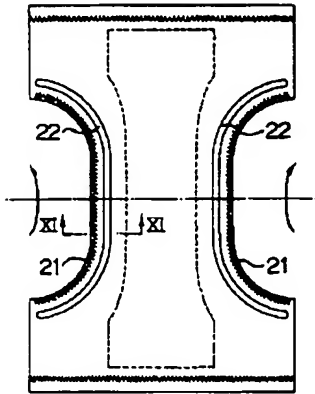
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Drawing selection drawing 13



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